

Borehole

# 60-12-07

Log Event A

## Borehole Information

Farm : <u>U</u>	Tank : <u>U-112</u>	Site Number : <u>299-W18-90</u>
N-Coord : <u>37,857</u>	W-Coord : <u>75,860</u>	TOC Elevation : <u>664.62</u>
Water Level, ft :	Date Drilled : <u>6/30/1970</u>	

## Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

## Borehole Notes:

The zero reference is the top of the casing, which at this location is level with the ground surface.

The borehole was drilled with 6-in. carbon steel casing. The tubing was installed to a depth of about 100 ft. The driller's log provides no indication of the use of a starter casing and does not indicate how the borehole was plugged or grouted.

The drill encountered a hard object at the 26-ft depth.

## Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

## Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>12/14/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>21.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>12/15/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>99.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>20.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole  
Log Data Report

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Borehole

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### Analysis Information

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Analyst : H.D. Mac Lean

Data Processing Reference : P-GJPO-1787

Analysis Date : 12/11/1996

#### Analysis Notes :

The log of the borehole was completed in two runs. The pre- and post-field verification spectra indicate that the logging system was operating properly during data collection. The energy/channel drift observed during the logging runs remained within an acceptable range for the search parameters used by the processing software, and multiple energy calibrations were not required to process the data. The monitored portions of the verification spectra indicate no deterioration in the efficiency of the detector. Data overlaps occurred when the same depth intervals were logged between the log runs. The calculated concentrations were within the statistical uncertainty of the measurements, indicating acceptable repeatability.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 was the only man-made radionuclide detected. Cs-137 occurred almost continuously between the ground surface and a depth of 17.5 ft. Detectable quantities of this contaminant were observed between depths of 24.0 and 24.5 ft and intermittently between depths of 40 and 94 ft; no contamination was observed in the bottom of the borehole. The Cs-137 concentrations in the continuous zone of the upper part of the borehole ranged from about 0.2 pCi/g to slightly more than 11 pCi/g. The maximum Cs-137 concentration of 11.2 pCi/g was measured at the top of the borehole. The Cs-137 concentrations within the borehole ranged from 0.2 to 1.0 pCi/g.

Details regarding the interpretation of the data for this borehole are presented in the Tank Summary Data Report for Tank U-112.

#### Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Westinghouse Hanford Company (WHC) Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data from WHC with no attempt to adjust the depths to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.